Fit the Bill

Objective: The students will describe different types of bird beaks and explain how each bird is adapted to feed on different foods.

Materials: 3 of each: eyedroppers or straw, chopsticks, nutcrackers or pliers, large scoops or slotted spoons, tweezers, envelopes or small fishnets, 2 large saucepans, and one thin vase.
A small pile of: popcorn or tiny marshmallows, rice or puffed rice, fake worms or grapes, oatmeal, walnuts or other nuts with shells, Styrofoam chunks

Background: It would be impossible for a hummingbird to gobble up a mouse. It would just as impossible for a hawk to slurp nectar from a flower. Each type of bird has a special beak and tongue adapted to eating a certain type of food. In this demonstration your class can find out which beaks are best for scooping, cracking, and picking by going to different stations and trying to find out which tools go with which types of "food".

Hummingbirds have long hollow beaks that are used to probe flowers for nectar.
Snipes and curlews have very long beaks that they used to probe for worms and other small animals in the mud and water.
Pelicans have long flattened beaks that they use to scoop up fish.
Nighthawks, poorwills, and swallows have large gaping mouths that act like nets to trap insects. These birds catch insects while flying.
Warblers have small, sharp, pointed beaks for picking insects from leaves or logs.
Sparrows and grosbeaks have very short conical beaks. They are very strong beaks and can break open seeds.

Procedures: You will need to set up six stations, each with a type of "food" that fits one of the beaks described. The starred * tool indicates the best fit. This activity is adapted from *Ranger Rick's Naturescope*.

Station 1. **Food:** Water in a tall, thin vase (hummingbird and nectar)
Tools: eyedropper or straw*, envelope or small fishnet, large scoop or slotted spoon

Station 2 **Food:** Large saucepan filled with dry oatmeal with grapes or fake worms on the bottom to represent worms buried in the mud. (curlews and snipes)
Tools: chopsticks*, nutcracker or pliers, eyedropper

Station 3 **Food:** Whole walnuts or other nuts with shells to represent seeds with hard coverings. (sparrows, grosbeaks and other finchlike birds)
Tools: nutcracker or pliers*, large scoop or slotted spoon, tweezers

Station 4 **Food:** Styrofoam chunks floating in a large pan filled with water to represent fish and other aquatic animals. (pelicans)
Tools: large scoop or slotted spoon*, eyedropper or straw, chopsticks

Station 5 **Food:** Popcorn or tiny marshmallows tossed in the air, which must be caught in the air to represent flying insects. (nighthawks and poorwills)
Tools: envelope or small fishnet*, tweezers, chopsticks

Station 6   **Food:** Rice or puffed rice spread on a log to represent insects. (warblers)
                 Tools: tweezers*, envelope or fishnet, nutcracker or pliers

Copy the "Fit the Bill" page for each student. Divide the groups into six teams and start each team at a different station. Explain that there will be three different tools at each station, each of which represents a different type of bird beak function. Each group will decide which tool would most efficiently get the food at each station. Once they pick the best tool, they should write the name of the tool on their "Fit the Bill" page at the "tool" blank. (Set a time limit to keep things moving.) After the activity, discuss beak adaptations in general. Why did the straw work best for the hummingbird? Discuss each station and the adaptation of the bird. Explain that many birds have evolved with very specialized beaks (have the students investigate the beak of the red crossbill, which lives in the Black Hills). Ask the group how specialized beaks can help some birds stay alive and how it might hurt some birds (birds like the crossbill are very limited in what they eat.) Explain that some birds like crows have very versatile beak and can eat almost anything. How would that help the bird survive – how can that hurt others?